Amendments to the Claims:

Please amend the claims as shown in the following listing of claims, which will replace all prior versions and listings of claims in the application.

1.-43. (Canceled)

44. (New) An article comprising a substrate having at least one main surface coated with a multi-layer anti-reflection stack, wherein the multi-layer anti-reflection stack comprises, in the order indicated starting from the substrate:

(a) a high index (HI) layer, having a refractive index n_D^{25} of 1.50 to 2.00 and resulting from the hardening of a first hardenable composition and comprising an organic-inorganic hybrid matrix resulting from the hydrolysis and condensation of at least one precursor compound bearing an epoxy or (meth)acryloxy group and at least two functions hydrolysable to silanol groups, within which at least one colloidal metal oxide or at least one colloidal chalcogenide or a mixture of these compounds is dispersed in the form of particles from 1 to 100 nm in diameter directly on this high index layer (HI); and

(b) a low index (LI) layer, having a refractive index n_D^{25} ranging from 1.38 to 1.44 obtained by deposition and hardening of a second hardenable composition and comprising the product of hydrolysis and condensation of:

(i) at least one precursor compound (I) comprising four hydrolysable functions per molecule of formula

$$Si(W)_4$$

in which the groups W, identical or different, are hydrolysable groups and provided that the groups W do not all represent at the same time a hydrogen atom; and

(ii) at least one precursor silane (II) bearing at least one fluorinated group and comprising at least two hydrolysable groups per molecule,

said second composition comprising at least 10% by mass of fluorine in its theoretical dry extract (TDE), and the molar ratio I/ I + II of the precursor compound (I) to the sum of the precursor compound (I) + precursor silane (II) of the second composition being greater than 80%.

45. (New) The article of claim 44, wherein a main surface of the substrate is coated with an anti-abrasion layer or a layer of a primer coating and a layer of an anti-abrasion coating, the anti-reflection stack being deposited onto the anti-abrasion coating.

46. (New) The article of claim 44, wherein, in addition, silica (SiO_2) is dispersed in the matrix of the high index layer.

47. (New) The article of claim 44, wherein the colloidal metal oxides and chalcogenides dispersed in the matrix of the high index layer is TiO_2, ZnO, ZnS, ZnTe, CdS, CdSe, IrO_2, WO_3, Fe_2O_3, $FeTiO_3$, $BaTi_4O_9$, $SrTiO_3$, $ZrTiO_4$, MoO_3, CO_3O_4, SnO_2, bismuth-based ternary oxide, MoS_2, RuO_2, Sb_2O_4, $BaTi_4O_9$, MgO, $CaTiO_3$, V_2O_5, Mn_2O_3, CeO_2, Nb_2O_5, or RuS_2.

48. (New) The article of claim 44, wherein the particles of metal oxide dispersed in the matrix of the high index layer are constituted by a composite titanium oxide in the form of rutile.

49. (New) The article of claim 47, wherein the mineral particles dispersed in the organic-inorganic hybrid matrix of the high index layer (HI) have a composite structure based on TiO_2, SnO_2, ZrO_2 and SiO_2.

50. (New) The article of claim 44, wherein at least 60% by mass of the theoretical dry extract (TDE) of the low index layer are derived from the precursor compound (I).

51. (New) The article of claim 50, wherein at least 65% by mass of the theoretical dry extract (TDE) of the low index layer are derived from the precursor compound (I).

52. (New) The article of claim 51, wherein at least 70% by mass of the theoretical dry extract (TDE) of the low index layer are derived from the precursor compound (I).

53. (New) The article of claim 44, wherein the molar ratio I/I+II of the precursor compound (I) to the sum of the precursor compound (I) + precursor silane (II) is at least 85%.

54. (New) The article of claim 53, wherein the molar ratio I/I+II of the precursor compound (I) to the sum of the precursor compound (I) + precursor silane (II) is at least 90%.

55. (New) The article of claim 54, wherein the molar ratio I/I+II of the precursor compound (I) to the sum of the precursor compound (I) + precursor silane (II) is at least 95%.

56. (New) The article of claim 44, wherein the hydrolysable groups W represent an OR, Cl or H group, R being alkyl.

57. (New) The article of claim 44, wherein the hardenable composition of the low index layer (LI) comprises a tri- or dialkoxysilane different from the silanes of the precursor compound (I) of formula $Si(W)_4$ and from the precursor fluorosilane (II) in a proportion by weight not exceeding 10% of the total weight of the silanes present in said composition.

58. (New) The article of claim 44, wherein the hardenable composition of the low index layer (LI) comprises only the silanes of the precursor (I) and the precursor fluorosilane (II).

59. (New) The article of claim 44, wherein the anti-reflection stack comprises only a high index layer (HI) coated with a low index layer (LI).

60. (New) The article of claim 44, wherein the anti-reflection stack comprises at least three superimposed layers, starting from the substrate, a medium index layer (MI), a high index layer (HI) and a low index layer (LI), respectively, the medium index layer (MI) having a refractive index n_D^{25} of 1.45 to 1.80.

61. (New) The article of claim 44, wherein the layer of material of high refractive index (HI) has a refractive index greater than 1.7.

62. (New) The article of claim 61, wherein the layer of material of high refractive index (HI) has a refractive index ranging from 1.72 to 1.82.

63. (New) The article of claim 62, wherein the layer of material of high refractive index (HI) has a refractive index of 1.77.

64. (New) The article of claim 44, wherein the layer of material of high refractive index (HI) has a physical thickness ranging from 10 to 200 nm.

65. (New) The article of claim 64, wherein the layer of material of high refractive index (HI) has a physical thickness ranging from 80 to 150 nm.

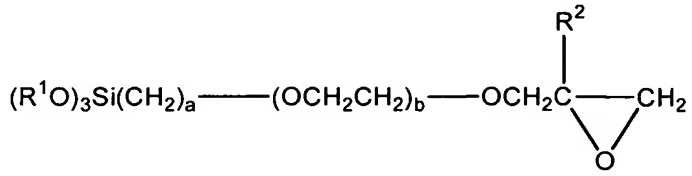
66. (New) The article of claim 65, wherein the layer of material of low refractive index (LI) has a physical thickness ranging from 40 to 150 nm.

67. (New) The article of claim 66, wherein the layer of material of low refractive index (LI) has a physical thickness of 90 nm.

68. (New) The article of claim 44, wherein the organic matrix of the composition (HI) is a hydrolysate of an epoxyalkoxysilane.

69. (New) The article of claim 68, wherein the epoxyalkoxysilane contains an epoxy group and three alkoxy groups, these latter being directly linked to the silicon atom.

70. (New) The article of claim 69, wherein the epoxyalkoxysilane corresponds to the formula (I):



(I)

in which:

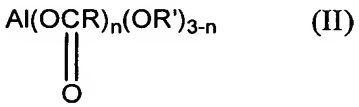
R^1 is an alkyl group of 1 to 6 carbon atoms,
R^2 is a methyl group or a hydrogen atom,
a is an integer between 1 and 6,
b represents 0.1 or 2.

71. (New) The article of claim 70, wherein R^1 is a methyl or ethyl group.

72. (New) The article of claim 70, wherein the epoxyalkoxysilane is γ-glycidoxypropyltrimethoxysilane.

73. (New) The article of claim 44, wherein the hardenable composition of the high index layer (HI) is combined with a catalyst constituted of an aluminum compound selected from:

aluminum chelates,
compounds of formula (II) or (III):

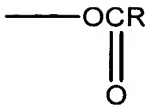


(II)

(III)

in which:
R and R' are linear or branched chain alkyl groups of 1 to 10 carbon atoms,
R'' is a linear or branched chain alkyl group of 1 to 10 carbon atoms, a phenyl

group, a group



in which R has the meaning specified above, and n is an integer from 1 to 3,

an organic solvent, the boiling point T of which, at atmospheric pressure, ranges from 70°C to 140°C, being present in the hardenable composition (HI) when the catalyst is an aluminum chelate.

74. (New) The article of claim 73, wherein the catalyst of the hardenable composition (HI) is an aluminum chelate.

75. (New) The article of claim 73, wherein the catalyst of the hardenable composition (HI) is an aluminum acetylacetonate.

76. (New) The article of claim 44, wherein the precursor compound (I) of the second hardenable composition (LI) is a tetraalkoxysilane.

77. (New) The article of claim 44, wherein the precursor compound (I) of the second hardenable composition (LI) is a tetraethoxysilane.

78. (New) The article of claim 44, wherein precursor silane (II) is selected from perfluorosilanes.

79. (New) The article of claim 44, wherein the substrate is a substrate made of an organic glass.

80. (New) The article of claim 79, further comprising an anti-abrasion coating and/or an impact-resistant coating.

81. (New) The article of claim 44, further comprising a hydrophobic anti-fouling coating deposited onto the anti-reflection coating.

82. (New) A process for the manufacture of an article according to claim 44, comprising:

depositing onto at least one of the surfaces of the substrate optionally coated with an anti-abrasion coating or a primer layer and an anti-abrasion coating at least one layer of material of high refractive index (HI), by application and then hardening of a first hardenable composition (HI) comprising an organic-

inorganic hybrid matrix resulting from the hydrolysis and condensation of at least one precursor compound bearing an epoxy or (meth)acryloxy group and at least two functions hydrolysable to silanol groups, within which at least one metal oxide and/or at least one chalcogenide is dispersed in the form of particles having a diameter of 1 to 100 nm; and

depositing onto said layer (HI) of at least one layer of material of low refractive index (LI), by application and then hardening of a second hardenable composition, said second composition comprising at least 10% by mass of fluorine in its theoretical dry extract (TDE), and the molar ratio I/ I + II of the precursor compound (I) to the sum of the precursor compound (I) + precursor silane (II) of the second composition being greater than 80%.

83. (New) The process of claim 82, wherein LI is the product of hydrolysis and condensation of:

(i) at least one precursor compound (I) comprising 4 hydrolysable functions per molecule of formula

$$Si(W)_4$$

in which the W groups, identical or different, are hydrolysable groups and provided that the W groups do not all represent at the same time a hydrogen atom,

(ii) at least one precursor silane (II) bearing at least one fluorinated group and comprising at least two hydrolysable groups per molecule.

84. (New) The process of claim 82, wherein the layers of material of high refractive index (HI) and low refractive index (LI) are deposited by dip coating or spin coating.

85. (New) The process of claim 82, further comprising, between the deposition of the layer of material of high refractive index (HI) and that of the layer of material of low refractive index (LI), a surface treatment of the layer (HI) in order to prepare the surface for the deposition of the layer (LI).

86. (New) The process of claim 85, wherein the treatment of the surface of the layer of material of high refractive index (HI) is an infrared treatment, followed by cooling by a stream of air at ambient temperature.

87. (New) The process of claim 82, wherein the anti-reflection stack is a triple layer stack (MI/HI/LI) comprising successively, and in the order starting from the substrate, a layer of

material of medium refractive index (MI), a layer of material of high refractive index (HI) and a layer of material of low refractive index (LI).

88. (New) The process of claim 82, wherein the layer of material of high refractive index (HI) has a refractive index of 1.72 to 1.82.

89. (New) The process of claim 88, wherein the layer of material of high refractive index (HI) has a refractive index of 1.77.

90. (New) The process of claim 82, wherein the layer of material of low refractive index (LI) has a refractive index varying from 1.38 to 1.44.

91. (New) The process of claim 90, wherein the layer of material of low refractive index (LI) has a refractive index of 1.43.

92. (New) The process of claim 82, wherein the layer of material of high refractive index (HI) has a physical thickness ranging from 10 to 200 nm.

93. (New) The process of claim 92, wherein the layer of material of high refractive index (HI) has a physical thickness ranging from 80 to 150 nm.

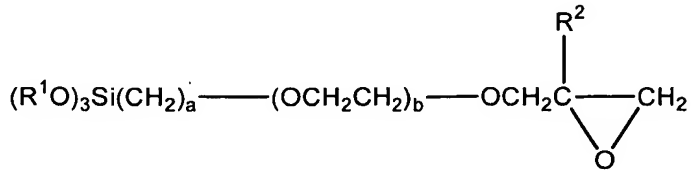
94. (New) The process of claim 93, wherein the layer of material of low refractive index (LI) has a physical thickness ranging from 40 to 150 nm.

95. (New) The process of claim 94, wherein the layer of material of low refractive index (LI) has a physical thickness of 90 nm.

96. (New) The process of claim 82, wherein the precursor compound of the first hardenable composition (HI) is a hydrolysate of an epoxyalkoxysilane.

97. (New) The process of claim 96, wherein the epoxyalkoxysilane contains an epoxy group and three alkoxy groups, these latter being directly linked to the silicon atom.

98. (New) The process of claim 97, wherein the silane with an epoxy group is an epoxysilane corresponding to the formula (I):



(I)

in which:

R^1 is an alkyl group of 1 to 6 carbon atoms,

R^2 is a methyl group or a hydrogen atom,

a is an integer between 1 and 6,

b represents 0.1 or 2.

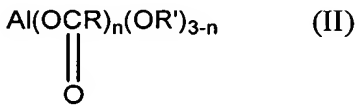
99. (New) The process of claim 98, wherein R^1 is a methyl or ethyl group.

100. (New) The process of claim 98, wherein the epoxysilane is γ-glycidoxypropyltrimethoxysilane.

101. (New) The process of claim 82, wherein the hardenable composition (HI) is combined with a catalyst constituted by an aluminum compound selected from:

aluminum chelates,

compounds of formula (II) or (III):



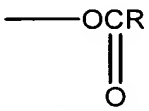
(II)

(III)

in which:

R and R' are linear or branched chain alkyl groups of 1 to 10 carbon atoms,

R'' is a linear or branched chain alkyl group of 1 to 10 carbon atoms, a phenyl group, a group



in which R has the meaning specified above, and n is an integer from 1 to 3,

an organic solvent, the boiling point T of which, at atmospheric pressure, ranges from 70°C to 140°C, being present in the hardenable composition (HI) when the catalyst is an aluminum chelate.

102. (New) The process of claim 101, wherein the catalyst of the composition (HI) is an aluminum chelate.

103. (New) The process of claim 101, wherein the catalyst of the composition (HI) is an aluminum acetylacetonate.

104. (New) The process of claim 82, wherein the precursor compound (I) of the composition of low index (LI) is a tetraalkoxysilane.

105. The process of claim 82, wherein the precursor compound (I) of the composition of low index (LI) is a tetraethoxysilane.

106. (New) The process of claim 82, wherein the precursor silane (II) of the composition of low index (LI) is a perfluorosilane.